Internal Capital Markets and Dividend Policy
Evidence from Indian Corporates

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Abstract

The Pecking Order Hypothesis states that firms prefer internal financing to external financing. If so, firms with larger sources of internal financing (internal capital markets, ICM) should be able to match more of their investment needs with internally available funds; consequently they would pay lower dividends. We test this hypothesis by looking at the dividend policies of listed Indian corporates: firms affiliated with business groups, according to the ICM hypothesis, would pay lower dividends on average. While previous papers have found that group-affiliated firms actually pay *higher* dividends, we find that, consistent with the ICM hypothesis, group-affiliated are *less* likely to pay dividends compared to unaffiliated firms, after controlling for industry affiliation and other firm-specific variables. We also extend the ICM hypothesis to take into account the cost of internal funds transfer by distinguishing between Indian firms and India-listed foreign firms; we hypothesize and confirm that these foreign firms, both group-affiliated and non-group-affiliated, are less likely to pay dividends than Indian firms. We consider and reject the possibility that this is due to their greater investment opportunities, as measured by the export intensity; we suggest that this may instead be due to related-party transactions (RPTs) such as transfer pricing arrangements between the foreign firms and their affiliates abroad. Our paper thus makes contributions in two different areas: one, the internal capital markets hypothesis; and two, differences between foreign firms and domestic firms, particularly in developing countries.

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I. Introduction

Ever since Modigliani and Miller suggested that dividends might not matter, there has been intense interest in why firms pay dividends. Their argument was that, transactions costs aside, as long as a firm is able to obtain funds from the capital market on the same terms as its retained earnings, it could always pay dividends by raising the funds in the capital market. As far as investors were concerned, they should be indifferent, tax considerations aside, between receiving cash dividends and generating home-made dividends by selling off shares. In practice, though, firms prefer internally generated funds to external financing – an empirical regularity described by Myers (1984) as the Pecking Order Hypothesis. This suggests that internally generated funds are cheaper: the question is why? Myers and Majluf (1985) introduced the possibility that information asymmetry between the firm and capital markets might cause external funds to be more expensive than internal funds. One implication of their theory is that firms with larger internal capital markets would have an advantage because they would be able to obtain funds more easily through internal generation of funds, rather than go to the external capital markets (ICM hypothesis). According to this hypothesis, large firms should pay lower dividends since, having access to a larger pool of new projects, they can use the funds more efficiently internally compared to small firms who would be more inclined to pay out excess funds. Large firms, however, are generally more stable as well, and we know from the Cashflow Uncertainty hypothesis that stable firms are able to pay higher dividends. Firm size may also be related to the availability of investment opportunities per dollar of assets, which is also a key determinant of dividend policy.[1] Hence, if the size of firms' internal capital markets is measured by the size of the firms, we then need to control for investment opportunities and cashflow uncertainty, as well. Disentangling the effects of internal capital markets from those of investment opportunities and cashflow uncertainty is not easy. The existence of business groups, which consist of loosely related firms linked together by a common, controlling set of shareholders, provides an opportunity to separate these effects.

In many Asian countries, it is not uncommon for firms to have a common and often controlling set of equity investors. These are well known as keiretsu in Japan and chaebol in Korea; their prevalence in China and India, too, has been well documented (He et al., 2013). Indeed, in both Korea and Japan, dividend payouts are quite low as predicted by the ICM hypothesis, compared to firms in other countries of similar economic development. However, it is not clear whether the size of the internal capital market is an important consideration in the determination of group firms' dividend policies in these countries. In Japan, it is usually the case that a banking corporation, called a main bank, is an integral part of the keiretsu group; as a result, dividend policies are not as important in terms of obtaining access to capital. In Korea, the state itself promoted chaebols as a development strategy and used state-owned banks to direct funds to chaebol

[1] Chahine, Filatotchev and Piesse (2007) find that growth opportunities are negatively related to firm size; according to this, large firms would pay higher dividends. The weaker propensity of large firms with large internal capital markets to pay dividends could end up being offset by this opposite tendency, thus obscuring a relationship consistent with the ICM hypothesis. Hence, it is important to control for investment/growth opportunities.

companies. In China, the stock market has not been an efficient mechanism to raise funds, given that SOEs (state-owned enterprises) form a large proportion of the listed companies; as a result, access to external capital is limited for most non-state enterprises. India, however, is unusual in having both group companies as well as a reasonably well-functioning equity capital market. As such, it provides us with a good environment to test the internal capital markets hypothesis in the context of dividend policy.

Gopalan, Nanda and Seru (2014) provide some evidence that reallocation of capital across group firms influences dividend policies of firms affiliated with those groups; using a cross-country sample, they show that dividends by group-affiliated firms are systematically related to concomitant equity-financed investments by other group affiliates; however the capital transfer in this case is not achieved through internal operations. Gopalan et al. (2007) show that group-affiliated firms provide loans to other firms in the same group that are experiencing financial distress; while this study does examine internal channels for fund transfers, they do not look at the effect of internal markets on dividend policy. Manos et al. (2012) do look at differences in dividend policies of group-affiliated firms versus stand-alone firms. However, they actually find that group-affiliated firms pay *higher* dividends than stand-alone firms, probably because of their failure to condition on other relevant firm-related variables.[2] Ours is the first study that provides convincing evidence of the effect of *internal* capital markets on dividend policy that is supportive of the ICM theory. We find that, while group-affiliated firms pay unconditionally higher dividends than stand-alone firms, group firms are actually less likely to pay dividends, once we take into consideration firm characteristics such as industry, as well as other variables proxying for investment opportunities, internal and external resource availability and cashflow uncertainty. Conditioning on the decision to pay dividends, though, group-affiliation at the margin does not have an appreciable impact on the level of dividend payments. Still, our results do provide support for the flow of financial resources between firms in the same group, as evidenced in dividend policy.

While these results show significant internal movement of financial resources within business groups, Gopalan et al. (2014) – as noted above – provide convincing evidence that groups also move funds across related firms through external mechanisms: group firms in their sample paid dividends to enable insiders to make equity investments in other group-affiliated firms. What these somewhat contradictory results demonstrate, is that the costs and benefits of direct internal transfers between affiliated firms need to be taken into account. If internal transfers are costlier, affiliated firms will use external transfers and may not show lower dividend payments. However, to the extent that affiliated firms can obtain greater advantages through internal funds transfers – for example, in the form of reduced tax payments – and can execute them cheaply, such firms would pay less dividends than stand-alone firms. In this paper, we find

[2] While Manos et al. (2012) do include some variables such as standard deviation of residuals from a market model and non-institutional shareholder holding to measure information asymmetry, they do not use industry affiliation or capital intensity or any measures of expected firm growth rate. This may explain the discrepancy between their results (they conclude from their regressions that group-affiliated firms pay lower dividends at the margin) and ours.

evidence that such advantages may indeed be dispositive for a subset of firms, viz. foreign firms, that is, firms where foreign promoters have management control.[3]

Previous studies have explicitly excluded such foreign firms from their sample, presumably on the basis that they are different from domestic firms. However, while we do show that they are different, these are also firms listed on Indian stock exchanges, and there is no reason to believe that they are not affected, by and large, by the same factors that affect listed domestic firms; hence it is worthwhile and arguably necessary to include them in the analysis. Since foreign firms are, almost by definition, associated with other entities abroad – often in the same industry – they are likely to have ample opportunities to strategically move funds from India to their affiliates abroad. We hypothesize, therefore, that such firms – whether allied with a group or not – are less likely to pay dividends at the margin, controlling for firm-specific variables. And, in fact, we do find that foreign firms have a lower propensity to pay dividends than Indian firms. Firms have a multitude of ways to transfer funds to other related entities, some of them affecting operating earnings (such as transfer pricing) and some of them non-operational (such as providing concessional loans). If transfer pricing is the chosen mechanism, then we have an additional test of the ICM hypothesis: foreign firms engaging in such activities to benefit their foreign affiliates should have lower profitability relative to Indian group firms, as has been shown for keiretsu firms (Lincoln et al. 1996). We cannot, however, conclusively show that this is indeed the case. On the other hand, to the extent that resource transfers are done in the form of loans or other activities that are not related to operations, profits may indeed not be affected. We do provide additional circumstantial evidence that the lower propensity of foreign firms to pay dividends may indeed be due to aggressive and strategic transfer pricing practices by these foreign firms designed to reduce taxes paid on Indian profits.

The interesting aspect of this result is that it is true not just in a comparison of foreign group-affiliated firms versus foreign non-group firms, but rather in comparing all foreign firms (group or non-group) to all Indian firms (group or non-group). The reason, we believe, is that the concept of groups as currently defined may not be appropriate for all purposes. In particular, researchers studying internal capital markets may need to use a broader definition of group. Khanna and Palepu (2000) define Indian business groups as "collections of publicly traded firms in a wide variety of industries, with a significant amount of common ownership and control, usually by a family." Bertrand et al. (2002) implicitly define a business group as a single shareholder (or a family) completely controlling several independently traded firms and yet having significant cash flow rights in only a few of them." Gopalan et al. (2014) define business groups

[3] According to Prowess, foreign non-group companies are defined subjectively as follows: "Companies classified as 'Private (Foreign)' are the companies that are owned by foreigners including foreign government and these companies do not belong to any foreign business group or any NRI business house. Further, there is no strict rule that can be applied to associating a company with a business group. It is neither entirely defined by the concept of promoters stake, nor is it a case of a certain percent of equity ownership with a particular individual or family, nor is it management control. Each of these are important but, none is a fool-proof way of defining ownership control and management. CMIE uses the available data, its intelligence and judgement in associating a company to a business group or any ownership heading in the ownership structure. The classification is thus sometimes tentative."

as "firms in different industries, often controlled by a family and their associates." These definitions, while not exactly the same, coincide pretty much with the common understanding of what a group is, as exemplified by the Tata group or the Ambani group or the Gillette group of companies. However, a firm like Bata India Ltd., which Prowess considers to be a foreign company is not classified as a group company presumably because the Bata Company, which is the majority shareholder of Bata India, is in a single line of business, describing itself as "a leading manufacturer and retailer of quality footwear" and thus violates one of the conditions of the Gopalan et al. (2014) definition. Nevertheless, the worldwide Bata Company and Bata India Ltd. are part of one internal capital market, since it is possible for the Bata Company to extract funds from Bata India Ltd. through transfer pricing practices or other related party transactions (RPTs) just as business group firms are able to transfer funds to other firms affiliated with the same business group. Hence studies of internal capital markets should consider using a definition of the term "group" that is broader than the traditional definition of a business group. However, in order not to confuse existing terminology, in this paper we will continue to apply the term "group" only to firms defined by Prowess as "group" firms.

In any case, if indeed foreign firms move money to out-of-country parent firms or other affiliates – for example if they move them abroad through aggressive transfer-pricing practices – then they would, indeed, tend to pay lower dividends. The point is that any kind of symbiotic relationship between two firms may lead to internal funds transfers between those firms, whether or not they are part of a group, as currently defined. And while many studies of the internal capital markets hypothesis have looked at these transfers as a way of funding investment projects in affiliated firms, they may be undertaken for broader purposes, as well. For example, Gopalan, Nanda and Seru (2007) also provide evidence that Indian group-affiliated firms provide loans to other financially troubled firms from the same group.[4] Fisman and Wang (2010) also note such related party transactions (RPTs) in the context of Chinese firms. They suggest two kinds of RPTs: one, a coinsurance relationship between one firm and another firm – the first firm may help the second firm out by paying a higher premium for services or goods provided; two, the first firm may provide loans or loan-guarantees to the second firm. Bertrand, Mehta and Mullainathan (2002) document transfers of resources in Indian groups from firms near the bottom of the pyramid to firms at the top of the pyramid.[5] Our results regarding the lower propensity for foreign firms to make dividend payouts is thus consistent with the literature on RPTs.

There may, however, be an alternative explanation for the lower propensity of foreign firms to pay dividends. Foreign firms may pay lower dividends because they use their international connections to cultivate export markets and hence need the internally generated cash to fund investment opportunities. The lower dividend payouts of these firms, according to this explanation, reflects higher growth

[4] Gopalan, Nanda and Seru (2007) however do not report dividend policies of these firms.

[5] See other examples of the broader phenomenon of RPTs in Srinivasan (2013).

opportunities. We test this hypothesis by using a firm's export intensity as a measure of these additional investment opportunities. However, contrary to the implications of the growth opportunities explanation, we find that exporting firms tend to pay *higher* dividends than non-exporting firms, after controlling for other influences. Exporting firms may indeed have greater growth opportunities, as indicated by larger market/book ratios and higher R&D investments; however, this does not seem to be an explanation for the lower dividend payout ratios of foreign group firms. In fact, export intensity and the foreign group effect seem to operate independently on a firm's dividend policy. One possible reason for the export intensity effect is that exporting firms may have lower cashflow volatility, possibly because their diversity of sales markets allows them to have greater diversification. Our paper, thus, has added a hitherto undiscovered determinant of corporate dividends viz. a firm's export intensity. This may be an important factor to consider in future studies of dividend policies of firms operating in open economies.

Since our sample includes multinational firms, in contrast to other papers studying the ICM hypothesis, we are also able to contribute to the ongoing literature discussing differences between foreign firms and domestic firms, particularly in developing countries. Internalization theory going back to Coase (1937) suggests a tension between the incentives for opportunistic behavior when two interdependent firms interact versus the higher coordination costs of running large organizations; according to this theory, multinational firms arise because of the higher transactions costs of trans-border activities (Ietto-Gillies, 2005). A second resource-based view (RBV) of the firm argues that foreign firms have intangible assets in the form of special technical or other knowledge that cannot be efficiently sold to third parties (Peng, 2001); alternatively, they may have advantages over domestic firms because of better access to international capital markets (Desai et al., 2004). According to the second theory, multinational firms should have different financial policies compared to domestic firms. In particular, multinational firms should have higher payout ratios, according to the RBV hypothesis, since their greater access to foreign capital markets makes them less dependent on retained earnings, while the internalization theory would predict no difference. Existing literature has looked at the capital structure of multinational firms (Desai et al., 2004); we contribute to this literature by showing that there are indeed differences between multinational firms and domestic firms in the context of dividend policy, as well. To the extent that foreign firms' access to international capital markets can be measured by their foreign currency borrowings, our results do not provide support to the RBV hypothesis.

In sum, we make several contributions. One, our paper extends the literature on dividend determination by providing tests of the internal capital markets hypothesis in the context of Indian corporates and shows, for the first time, that group-affiliated firms are less likely to pay dividends. Second, we argue that the relative costs and benefits of internal resource transfer and transfer using external capital markets need to be incorporated into tests of the ICM hypothesis. We hypothesize and confirm that foreign firms behave differently from Indian firms in that they have a lower propensity to pay dividends; this reflects the greater facility of foreign firms to engage in RPTs, possibly through creative transfer pricing. In so

doing, we also add to the literature on RPTs. Parenthetically, our arguments also have implications for the proper definition of groups in the study of internal capital markets. Finally, our paper contributes to the ongoing literature investigating differences between foreign firms and domestic firms, particularly in developing countries; in particular, we are innovative in suggesting and finding a role for a hitherto undiscovered determinant of dividend policies, viz. export intensity.

The organization of paper is as follows. In the next section, we discuss the internal capital markets hypothesis and its implications for dividend policy, as well as other theories of dividend determination. We also describe the data obtained from Prowess database and variables used as proxies for each hypothesis. Section III presents our Tobit and Probit regressions to test the ICM hypothesis. Section IV introduces the role of resource transfer costs in the implications of the ICM for dividend policy. This allows us to hypothesize that foreign firms should pay lower dividends than domestic firms, because of their higher benefits from and lower costs of effecting RPTs. We present tests supporting our hypothesis. Section V suggests two alternate explanations of our results regarding foreign firms and presents grounds to reject those suggestions. Section VI concludes.

II. Hypotheses and Data

In this study we measure dividend payout in two ways: the dividend-to-earnings ratio (cash dividends paid divided by earnings defined as after-tax profits, DIV/E) and the dividend-to-sales ratio (DIV/S).[6] We now introduce additional variables suggested by competing theories of dividend payout ratio. Table 1 summarizes definitions and expected signs of the explanatory variables in the payout regressions based on the hypotheses discussed below.

Insert Table 1 around here

A: Groups and Internal Capital Markets

In many countries with underdeveloped capital markets, the lack of effective safeguards means that investors look for non-market channels for investment. Historically, this accounts for the high frequency of family firms in developing countries. These firms depend on family ties to ensure monitoring and contract enforcement. However, as economies develop, optimal firm sizes increase and the need for capital exceeds the ability of single firms to satisfy capital requirements. This leads to the development of business groups (Khanna and Palepu, 1999). Khanna and Yafeh (2005) argue that ICMs in business groups allow for efficient risk sharing.

[6] We refer to these two ratios jointly as payout ratios, for convenience, even though it is the dividend-to-earnings ratio alone that is usually referred to as a payout ratio. The DIV/S ratio has more firms included in the sample since it can include firms with zero and negative earnings.

As discussed in the Introduction, it has been conjectured that business groups in India function like chaebols or keiretsus and provide access to capital to their group members.[7] Khanna and Palepu (2000) and others note that groups can transfer funds across firms to economize on the cost of raising external capital.[8] Gopalan et al. (2007) study, in particular, the tendency of firms to provide loans to other group-affiliated firms that are in business difficulties. The ability of firms in a group to share financial resources with each other means that internal capital can be used efficiently and there is a reduced need to return capital to shareholders occasioned by lack of profitable internally generated investment opportunities. Consequently, firms belonging to groups would be expected to have lower payout ratios. This is the Internal Capital Markets Hypothesis.

Using data on group membership, we created four different categories, based on ownership-type: private Indian group companies, private foreign group companies, private Indian non-group (stand-alone) companies and private foreign non-group companies.[9] Table 2 provides data on the composition of our data: by year, by ownership category and by industry affiliation. Panel A shows that our data are fairly evenly distributed over the sample period. As can be seen from Panel B, about two-fifths of our firms are group companies, while the rest are non-group companies. The ratio of group to non-group to companies is about 0.635 for Indian companies, while it is lower for foreign companies at 0.445. Of course, as argued in the introduction, foreign companies, even those not belong to a group often have ties other companies operating outside India; taking this into account, the ratio of companies affiliated with other companies to truly stand-alone companies may not be substantially different for the subset of foreign companies. About 7.24% of our sample consists of foreign firms listed in India, which is potentially large enough to allow us to make comparative inferences between foreign and domestic firms. In addition to our group dummy variables, we use two measures of internal capital market size: i) group assets (Group_log(TA)), which is computed as the sum of total assets across all members in a given group, and ii) group size (group_N), defined as the number of distinct companies belonging to a given group. For non-group firms, the group assets variable would simply be the total assets of that firm and the group size variable would be unity. To the extent that these variables do indeed measure the size of the internal capital market, the ICM hypothesis predicts that they will affect dividend policy – the greater the size of the group that a firm belongs to, the lower should its dividend payout ratios be. However, these two variables, group assets in particular, might very well represent the stability of the group and hence that of the firm and could, therefore, be positively correlated with dividend payouts. Group size (group_N), however, is more likely to be a proxy for the size of the internal capital market in a regression, especially if the group assets variable is also included.

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[7] See Khanna and Palepu (1999, 2000) and Hansoge and Marisetty (2011), for example.

[8] Bertrand et al. (2002) point out that intragroup flows can be used to tunnel cash out of firms with low insider holding to firms with high insider holding in order to steal resources.

[9] Prowess also provides data on joint sector companies, firms owned by NRIs and government companies. We do not include these firms in our sample, since their motivations are likely to be different from private sector for-profit companies. An argument could be made that firms owned by NRIs and joint-sector firms are comparable to other private-sector firms; however, there were only about half a percent of our sample falling into this category. Hence we dropped these firms from the final sample to improve the accuracy of our interpretations.

Insert Table 2 around here

Table 3 presents the first test of the Internal Capital Markets Hypothesis. We see from the Lawley-Hotelling trace statistic in the last row, that firms in the four different categories do not all have the same dividend policy. The null hypothesis of no difference can be strongly rejected. Above that, we present tests of the hypothesis that group firms have the same dividend payout ratios as non-group firms: this hypothesis, too, can be strongly rejected. Taken at face value, what this actually says is that group firms have higher payouts than non-group firms. In fact, we see from Figure 1 that, not only do group firms pay higher dividends than non-group firms, but that this is true – averaged over firms – year-by-year, for every year in the sample. This is consistent with the findings of Manos et al. (2012), but constitutes a rejection of the ICM hypothesis, since as explained, internal capital markets should allow for more efficient use of retained earnings, leading to lower dividend payouts, not higher dividend payouts. This conclusion, however, assumes that group and non-group firms are the same in other respects. In particular, we are really assuming that distinctions between group and non-group firm categories – other than the size of their internal capital markets – have nothing to do with payout ratios. In the following sub-sections, we provide a brief survey of the literature to see what other variables have been hypothesized to affect dividend policy, so that we can take them into account in our further tests of the ICM hypothesis.

Insert Tables 3 and 4 around here

Insert Figure 1 around here

B: Investment Opportunities and Dividends

Investment Opportunities and Growth

It has been hypothesized that firms with investment opportunities would have lower payout ratios so as to conserve retained earnings, given that information asymmetry implies that external funds are more expensive than internal funds; this follows from Myers' (1984) Pecking Order Hypothesis. Empirically, Woolridge and Ghosh (1985) found that the market penalized firms that cut dividends; however, when the firms simultaneously announced investment opportunities, the negative market reaction was much lower, and it was more than overturned in the next quarter. Soter, Brigham and Evanson (1996) reported similar results with the Florida Power and Light's 1994 dividend cut, which was designed to improve the company's long-term financial flexibility and prospects for growth, and which resulted in an overall positive market response.[10] Abbott (2001) looked at firms whose investment opportunity sets changed and tried to correlate this with their financing policies – he found that firms with improved investment opportunities

[10] One possible explanation for the immediate negative market reaction is that the market did not have enough information to confirm the firms' announcement of better investment opportunities.

decreased their dividend payouts. The evidence, then, supports the notion that firms with higher investment and growth opportunities would have lower payout ratios.

We use several measures of growth. The ratio of intangibles to total assets (Intangibles) is usually positively correlated with growth opportunities, as is the Market-to-Book ratio (MBR); high market-to-book firms, having high investment and growth opportunities should pay low dividends. The ratio of fixed assets to total assets (capital intensity, CapInt) is usually negatively empirically correlated with growth opportunities, since firms with high investment in tangible, fixed assets are often older manufacturing firms that are more stable. However, other research has found a positive, though not causal, relationship between capital intensity and growth opportunities. For example, David et al. (2006) found that foreign ownership in Japanese corporations leads to higher capital intensity and higher expenditure on R&D in the presence of growth opportunities. Arguably, the issue here is the lack of investor protection and the fear of opportunistic exploitation, which can be overcome by the availability of growth opportunities: although the rule of law exists in Japan, there is enough evidence to indicate that Japanese managers are unresponsive to foreign shareholders. If so, it would be appropriate to extrapolate from foreign owned firms to other firms in our Indian context; hence, capital intensity could be empirically positively correlated with growth opportunities. We also use R&D as a measure of investment opportunity, since its purpose is to generate investment ideas. These variables are also associated with information asymmetry. Finally, we use export intensity (exports/sales) as a measure of investment opportunities for foreign firms; this will be discussed to a greater extent in section IV.

Industry Affiliation and Growth

It is well known that earnings growth rates vary systematically across industries. Hence it makes sense that dividend payout ratios would vary across industries as well.[11] Industry membership for the companies was obtained from the PROWESS database, using the NIC classification variable presented in Table 2 panel C. Table 2 shows that about 57% of our sample consists of manufacturing firms; the rest are distributed across the different industry categories, with Business Service firms constituting the second largest industry. Since the agriculture industry includes very few observations, it is commingled with the miscellaneous category in our regressions and is left out from regressions to prevent multi-collinearity; hence all industry effects are relative to the agriculture/miscellaneous category. Going further, Table 4 shows the mean dividend payouts across industry groups. The Lawley-Hotelling statistic shows that payouts vary significantly across industries, with electricity firms having the highest average payout ratio (Dividend/Earnings) and Business Service and Construction firms having the lowest (leaving aside the miscellaneous category). It is clear, therefore, that we cannot take the results of Table 3 at face value as a valid test of the Internal Capital Markets hypothesis; we need to adjust for industry affiliation in our tests

[11] Industry affiliation often turns out to be a significant explanatory variable in studies of financial policies, for example in capital structure models (Frank and Goyal, 2009).

to ensure that dividend policy variation between group and non-group firms is not, in fact, proxying for inter-industry variation.

C: Access to Funding and Dividends

The higher the level of internal funds available, the higher the payout ratio the firm can tolerate and still fund internally generated projects. Hence we would expect a positive relationship between payout ratios and measures of cashflow.[12] We used the ratio of cashflow to assets (CFA) as a flow measure of internal funds availability.[13] Financial leverage (Ltdebt) may also indicate the availability of free cashflow to be paid out as dividends; the higher the financial leverage, the lower the free cashflow. On the other hand, leverage brings along with it, the requirement to pay interest and could arguably reduce free cashflow. Finally, we use the ratio of cash and bank balances to total assets (CASH) as a stock measure of internal funds availability.

In addition, as mentioned above, access to external funds might be an important determinant of dividend policy since, as long as there are positive NPV investment projects available for the firm, the payment of dividends increases dollar-for-dollar the need to raise funds externally. Access to domestic capital markets may be considered similar for all firms; however, not all firms have equal access to foreign capital markets. We measure access to foreign capital markets by looking at foreign currency borrowings, normalized by total borrowings.[14] The greater the access to external funds, the higher dividend payouts can be; on the other hand, the greater a firm's borrowing, the lower the free cashflow (after interest payments) available to be paid out as dividends. Hence the effect of this variable on dividend payouts could be either positive or negative.

D: Cashflow Uncertainty and Dividends

Dividend payouts are also expected to be affected by cashflow uncertainty: firms with higher cashflow uncertainty have a greater chance of not having sufficient resources to meet their dividend commitment. Bradley, Capozza and Seguin (1998) show that this argument holds in the case of REIT companies. More recently, Chay and Suh (2009) looked at a global sample of firms and established a similar result for developed and developing countries including India, using realized stock return volatility. We measure cashflow uncertainty directly as the volatility of Operating Cashflow before Working Capital normalized by Total Assets, computed using observations for the most recent four years (3 lags and current

[12] See Myers (1984) for a static version and Viswanath (1993) for a dynamic version of the Pecking Order Hypothesis that suggests the importance of this category of variable. Byoun (2008) presents a recent test of this hypothesis.

[13] The CFA variable that we use is similar to the operating profitability variable used by Chay and Suh (2009).

[14] We also have data on GDR/ADR issues; however, it turns out that most firms did not take advantage of this method of raising foreign equity capital. Hence we do not include this variable in our analysis.

year) (VOLCF).[15] In addition, larger firms and older firms tend to be more stable; hence we also use firm size (measured as log(TA), the log of total assets) and firm age (Age) as additional measures of cashflow stability.[16]

Insert Tables 5, 6 and 7 about here

E: Data and Summary Statistics

Data was obtained from the Prowess database marketed by CMIE (Centre for the Monitoring of the Indian Economy). While CMIE data is available from the 1990s, there were a lot of policy changes in the earlier years and firms were still responding to the new economic environment in these early years;[17] hence we use data from a more recent time period. We chose firms on the A and B lists of the Bombay Stock Exchange with available data from the years 2000 to 2009.[18] The CMIE database, unfortunately, has problems with data inconsistency. We dropped firms with dividends greater than sales; firms with negative dividends; firms with negative earnings and positive dividends; firms with negative book value of equity and zero market value of equity; firms with exports greater than sales and negative exports; firms with negative long term debt; and finally firms with cash greater than total assets. In order to exclude outliers, we also winsorized the dividend-to-earnings, long term debt/market-value-of-assets, intangibles/assets, foreign exchange borrowing/assets, firm age, R&D and capital intensity at the top 1%; and log(assets) and cash flow/assets at the top and bottom 1%.[19] As a result our sample consists of 15574 observations (firm-years).[20]

Table 5 provides summary statistics for our explanatory variables. Table 6 reports the correlations between dividend payout and key variables over the period 2000-2009. The second column reports the correlations of DIV/E, the dividend-to-earnings ratio, with key variables. The third column reports the correlations of DIV/S, the dividend-to-sales ratio, with key variables. All correlations are significant at the

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[15] This is similar to the ROAVOL measure used by Chay and Suh (2009), though VOLCF is probably better because it is a cashflow construct, rather than an accounting construct. Chay and Suh (2009) use two other variables that we do not have, viz. the retained earnings-to-total equity ratio (RE/TE) and insider ownership; however, neither of these variables is significant in their India regression. We do use data on group affiliation that arguably captures the effect of insider ownership in India. The RE/TE variable is a financial life-cycle theory; industry affiliation and firm age, which we do use, may be considered measures of financial life-cycle.

[16] We considered including the firm's asset beta as an explanatory variable, on the assumption that beta and return volatility would be positively correlated. However, this variable was not significant, and so we do not report the associated regression coefficients. Part of the problem was that we did not have enough data to compute the asset beta directly using asset returns. Instead, we took the measure of equity beta provided by Prowess and adjusted for the weight of equity in the capital structure of the firm by multiplying the equity beta by the ratio of the market value of equity to total assets, implicitly assuming a debt beta of zero. To complicate the issue, Prowess only provides the most recent estimate of a firm's equity beta.

[17] There is some evidence even in the earlier years that exporting firms are already different from other firms (see Ganesh-Kumar, Sen and Vaidya, 2003).

[18] One reason for not using data beyond this date is that the worldwide financial crisis that erupted in 2008 has probably affected dividend patterns in the post-crisis era.

[19] We follow Chay and Suh (2009) in this.

[20] When we constructed the volatility of cash flows variable from 3 lags and current year cash flows, the sample is further reduced to 7 years of data (2003-2009) with 9662 observations. The sample size for our Tobit and probit models is smaller due to missing values.

5% level, except for that between DIV/S and VOLCF. All variables with the exception of R&D, Intangibles and MBR, have the expected correlation with dividend payout variables.[21] Panel A of Table 7 provides average values of our explanatory variables for the group and non-group sub-samples. The first two rows emphasize the fact that dividend payouts are higher for group firms, in sharp contra-distinction to the ICM hypothesis, as already discussed above in section II A. The other rows show the differences between the two sub-samples. Group firms are larger, older, more leveraged, have higher capital intensity and R&D expenditure and market-to-book ratios. And while they have higher cashflows, they have lower cash on hand. This shows that group firms are different from non-group firms. Hence the seemingly higher payout ratios for group firms has to be re-examined after controlling for these explanatory variables.[22]

Panel B of Table 7 shows the differences between Indian and foreign firms. Foreign firms are larger, older, have higher payout ratios, higher R&D, higher market-to-book ratios, higher cash-in-hand as well as cashflows; but lower capital intensity and lower cash flow volatility. They have higher exports and higher foreign currency borrowings as might be expected but lower long-term debt. They have more in group assets on, but fewer group members.

III. Estimation Results

We now go on to investigate the relationship between dividend policy, our measures of group affiliation and our other control variables. We note, at the outset, that the payout ratio cannot take values less than zero and should properly be treated as a censored variable; hence we use a Tobit specification. The model uses pooled data with industry, group and year dummy variables included in the Tobit regressions. We follow Petersen (2009) and report t-statistics for the pooled results using standard errors corrected for clustering at the firm level. We first regress, using the entire sample of observations, the payout ratios DIV/E and DIV/S against the set of three ICM hypothesis variables – a single indicator dummy variable for all group firms (Indian or foreign), group assets and group size – and other variables controlling for the Investment Opportunities, Access to Funds and Cashflow Uncertainty hypotheses as discussed in section II; the results are reported in columns 2 and 4 of Table 8. The results in columns 3 and 5 are for all Foreign versus all Indian firms either belonging to a group or not. Before we look at the variables representing the ICM hypothesis, we note that most of the independent variables included in the regression to control for other theories of dividend payouts behave as expected. Age, Firm Size and Volatility of Cashflows, controlling for the Cashflow Uncertainty hypothesis all have the expected signs. As far as the Investment Opportunities Hypothesis is concerned, Intangibles are negatively related to the payout ratios as expected and Capital Intensity has a negative coefficient, consistent with David et al. (2000), while the MBR variable is insignificant. However, R&D has an unexpected positive coefficient; it is not clear why

[21] Export Intensity (Exp) also has an unexpected positive relationship with payout ratios; this will be discussed later in section IV.

[22] As we will see, in our regressions, all variables except for R&D behave as predicted in Table 2.

this is so, but it may be related to the greater tendency of established firms to engage in R&D activities which may require a long time to produce returns (Shefer and Frenkel, 2005). Controlling for the Access to Funds hypothesis, we have CASH and Cashflow-to-Assets both having the expected positive sign, while Ltdebt has a significant negative coefficient indicating that it depletes free cashflow.

Coming to the variables tapped to represent the ICM hypothesis, Group Assets are positively related to the payout ratio, indicating that it is more similar to Firm Size and is a measure of cashflow stability rather than internal capital market size. Group_N is significantly negative, which is consistent with the idea that it is a measure of internal capital market size. The coefficients for the group dummy variable are not significantly different from zero in either of these regressions. While these results are interesting, given the fact that our univariate tests show group firms actually paying *higher* dividends, they still do not definitively support the ICM hypothesis. We then repeat the regressions, but this time using not one single group dummy variable, but three different dummy variables – for Indian group firms (indian_group), foreign group firms (foreign_group), and foreign non-group firms (foreign_nongroup) (dropping the Indian non-group firm dummy variable to prevent multicollinearity). These regressions, too, are inconclusive, in that the coefficients of the three dummy variables are not significant at the 10% level of significance; details of these results are not reported, for the sake of brevity.

Insert Table 8 about here

Regressions using the entire sample, of course, force the coefficients for the independent control variables to be the same for both foreign firms and Indian firms. There is, however, a substantial literature noting that domestic firms are different from foreign firms, as mentioned in the Introduction. This suggests that the inability to reject the null hypothesis of no difference between group and non-group firms may be due to this additional restriction, which is not implied by the ICM theory. Hence we rerun our regressions separately for Indian and foreign firms. Once again, both for the foreign and the Indian subsample, it is not possible to reject the null hypothesis that payout policies for group and non-group firms are the same; these results, too, are not reported.

Insert Table 9 about here

The Tobit regressions test the hypothesis that group firms pay lower dividends than non-group firms, which is the primary hypothesis of the ICM theory. An additional implication of the ICM theory, though, is that group firms are less likely to pay dividends at all, compared to non-group firms. To test this hypothesis, we perform a probit analysis to model the probability of firms choosing to pay dividends; the results are presented in Table 9. For better comparison with our Tobit results, we create a dummy variable for our probit analysis that is based on our Tobit dependent variable: our probit dependent variable takes the value 1 when Div/Sales is positive and zero otherwise. We find that, for our full sample (column 2), group firms do not have a significantly greater propensity to pay dividends than non-group firms. However,

once we allow the different sub-groups to have different coefficients (column 10), we find that Indian group firms do indeed have a significantly lower propensity to pay dividends compared to Indian non-group firms, as suggested by the ICM theory.[23] We also find that foreign non-group firms also have a significantly lower propensity to pay dividends, compared to Indian non-group firms. Furthermore, when we run the regression separately for foreign firms, we find that foreign group firms actually pay statistically significantly *higher* dividends than foreign non-group firms (column 6). This is quite unexpected and not predicted by the ICM hypothesis. This suggests that foreign group firms behave differently from foreign non-group firms. This is confirmed in the results of the regression reported in column 4, where the dividend payout of foreign firms is contrasted with that of Indian firms; foreign firms have a significantly lower propensity to pay dividend payouts than Indian firms.[24]

At this point, we come to two conclusions: a) the ICM theory is substantiated to the extent that Indian group firms are less likely to pay dividends than non-group firms, and b) that foreign firms are significantly different from Indian firms. While there is some evidence to suggest that the ICM theory is rejected for foreign firms, we need to look more carefully at the characteristics of foreign firms in order to construct better tests of the ICM hypothesis for foreign firms. Once we expand the set of independent variables that have special relevance for foreign firms, we may well find that foreign group firms no longer have a significantly greater propensity to pay dividends. We consider two different hypotheses to explain the weaker tendency of foreign group firms to pay dividends. The first hypothesis is that foreign groups are better able to locate investment opportunities because of their international connections; it follows then from the Investment Opportunities Hypothesis that they would pay lower dividends. The second hypothesis is that local affiliates of foreign groups find it optimal to transfer funds to their foreign partners through related party transactions (RPT); consequently they have lower local payouts in the form of dividends. The next section considers the investment opportunities explanation, while the following section considers the RPT explanation.

IV. Foreign Firms, Investment Opportunities and Exports

The Specific Advantage Theory of multinational firms (Dunning, 1973) argues that multinational firms have specific advantages that are transferable within the firm, but cannot be transferred in the marketplace. Such advantages may be derived through R&D and may connote technical or operational superiority (Markusen, 1995). Another possibility, however, is that they have better access to information that can profitably utilize resources available in the host country. This may be because they have better

[23] The coefficients for group size, group assets and CapInt, which were significant in the Tobit regressions are no longer significant in these probit regressions.

[24] The Tobit regressions (Table 8, columns 3, 4) do not allow us to reject the hypothesis that Indian and foreign firms are similar in their dividend payouts.

information and better ability to analyze investment situations (Caves, 1996). There is a fair amount of support for this view in the empirical literature (Bellak, 2004). If so, foreign firms should be able to better utilize internally generated funds; they would, consequently, pay lower dividends. We use export intensity, measured as the ratio of exports to total sales, to measure a firm's ability to exploit foreign investment opportunities. According to this hypothesis, then, a regression of dividend payout on export intensity should show a significant negative coefficient. If our previous finding that foreign firms have a lower propensity to pay dividends is because of our having incorrectly measured their investment opportunities, inclusion of the export intensity variable may now render the foreign dummy in our regressions insignificant. We also include an additional variable, FOREX, the ratio of unsecured foreign currency borrowings to total borrowings, which may be relevant for various reasons. This variable could function as a measure of firms' greater availability of funds to pay dividends; on the other hand, since borrowings of any kind mean that interest payments have to be made, it may indicate firms' lesser ability to pay dividends. Finally, they may also indicate greater growth prospects for firms, on the supposition that foreign investors are more confident of a firm's prospects if they are willing to lend it money; this would imply that such firms – and foreign firms may well be over-represented in this category – would pay lower dividends.

A Tobit regression of dividend payout ratios on group dummy variables and other independent variables, including export intensity and foreign borrowings, does not change our conclusions from the previous section; the group dummy variables are insignificant and remain insignificant (results not reported). However, when we look at the results of the probit analyses, we find some new results. First of all, we find that even with a single group dummy representing all group firms in the entire sample, we can now reject the hypothesis that group and non-group firms have equal propensities to pay dividends (Table 9, column 3); in fact, we accept the alternative hypothesis that group firms have a lower propensity to pay dividends, providing confirmatory evidence in favor of the ICM theory. Second, when we include different dummy variables (representing Indian group firms, foreign group firms and foreign non-group firms) as independent variables, we find that Indian group firms continue to have a lower propensity to pay dividends compared to Indian non-group firms (Table 9, columns 9 and 11). We also find that foreign group firms continue to have a *greater* propensity to pay dividends compared to foreign non-group firms, as before, although the magnitude of the Foreign_group dummy variable is slightly smaller (Table 9, column 7); furthermore, foreign firms continue to have a lower propensity to pay dividends, as before, although the regression coefficient is smaller (Table 9, column 5).

Before we proceed further, it is interesting to note that our two new variables, export intensity and forex borrowings are both significant. Firms with higher forex borrowings have higher propensity to pay dividends consistent with the idea that higher borrowings increase the ability of the firm to pay dividends; this contrasts with the coefficient of domestic long-term debt (Ltdebt), which is negative, suggesting that

firms with higher debt may have lower disposable cashflow to pay dividends.[25] If these two coefficients are to be taken at face value, foreign borrowings and domestic borrowings may play different roles in terms of a firm's dividend policy. Our second variable, export intensity, also has a surprising coefficient. Firms with higher export intensities tend to have higher propensities to pay dividends: this is contrary to our initial conjecture that export intensity might measure a firm's growth opportunities. One explanation for this counter-intuitive result may be that export intensity is a measure of cashflow stability. To the extent that the Indian economy is not fully in sync with the global economy, foreign sales may represent a diversification of a firm's revenues; this may explain the positive coefficient for export intensity in our regressions.

Insert Table 10 about here

Coming back to our exploration of the ICM hypothesis, we perform year-by-year probit regressions to examine the robustness of our pooled probit regression results in Table 9 to see whether the overall results mask variation over years; these results are reported in Table 10. Each reported coefficient is the average of the seven regression coefficients over the seven-year sample period and the numbers in parentheses are t-statistics for the average regression coefficient. These t-statistics are calculated following the Fama-MacBeth approach from the time series of fitted probit coefficients. The year-by-year regression results shown in Table 10 are supportive of the pooled regressions. Following Petersen (2009), who reports smaller biases when clustered standard errors are used in finance panel datasets compared to other approaches, we rely on Table 9 results and use Table 10 results for sensitivity.

To summarize our results: in spite of including two new independent variables, export intensity and forex borrowings, we continue to find that foreign group firms are *more* likely to pay dividends than foreign non-group firms inconsistent with the ICM theory, although the evidence for Indian firms continues to be consistent with the ICM theory. It is, of course, possible that there are other as-yet unknown aspects, unrelated to internal capital markets, in which foreign and Indian firms differ, recognition of which would allow us to accept the ICM theory for foreign firms. At this point, though, we explore another reason why foreign firms might be expected to behave differently from Indian firms by taking a closer look at the ICM theory; in the following section, we look at the relative costs and benefits from the use of internal capital markets for foreign firms versus Indian firms.

[25] We also consider the possibility that Ltdebt might be endogenous, since it is also a financial choice variable for the firm. We performed a Wald test of exogeneity using just one instrument (Capital Intensity) due to limitations of number of variables available in the database. The results in terms of the magnitude and the significance of variables (Ltdebt) in the equations were the same. We have, therefore, retained the results of Tobit and Probit without performing an additional two-stage estimation.

V. Internal Capital Market Transfer Costs, Related Party Transactions & Foreign Firms

We provided support in the previous sections for the Internal Capital Markets hypothesis, at least as applied to Indian firms. Specifically, we saw that, as implied by the ICM hypothesis, group-affiliated firms have a lower propensity to pay dividends compared to non-group firms. The reason as we noted earlier, was that groups have larger internal capital markets, since they consist of several firms with a significant amount of common ownership and control. Given the element of common ownership, affiliate firms with excess financial resources can supply them to other affiliate firms with financial resource deficits. Since internally generated funds are less expensive than externally sourced funds, transmission of funds through the shared *internal* capital market makes more sense for the resource-surplus firm than paying out the excess funds in dividends. However, this argument depends crucially upon the costs and benefits of internal transmission being lower than the costs and benefits of external transmission.

As Bertrand et al. (2002) point out, internal transfers may not be always be in the best interests of non-insider shareholders. As a result of the danger of such potential wealth expropriation, these non-insider shareholders may force insiders to bear dissipative auditing costs (Gopalan et al., 2014); Gopalan, Nanda and Seru (2007) document the presence of such additional costs in the form of routine covenants in loan contracts in India that require the auditing of the pricing of inter-corporate investments. In addition, since there are tax implications to many of these internal transfers, they may be subject to additional regulations such as transfer-pricing rules. Hence, while there are extra savings from such related party transactions, they may also invite additional regulatory and legal scrutiny. Following the economic liberalization of the securities markets in India since the early 1990s, the government has also improved oversight of corporate financing behavior through the establishment of regulatory agencies like the Securities and Exchange Board of India (SEBI) and new transfer pricing regulations introduced in 2001; hence costs of internal resources transfers within groups cannot be ignored. This is consistent with the results of Gopalan et al. (2014) who found that business groups often use the external dividend channel to fund investments in affiliate firms. On the other hand, transferring funds through the explicit payment of dividends to common insider investors involves the payment of taxes. Thus, while there are tax disadvantages to external transfers, there are offsetting regulatory disadvantages to internal transfers. We argue below that, on the one hand, regulatory costs of internal transfers for foreign firms are likely to be lower than that for Indian firms; on the other, the tax advantages of internal transfers are also higher. Hence internal resource transfers are more likely to occur in foreign firms than in Indian firms; consequently, dividend payouts are likely to be lower for foreign firms than for Indian firm. In order to appreciate the advantages of internal transfers for foreign firms, it is first necessary to discuss the concept of related party transactions or RPTs at greater length.

RPTs are transactions between parties which are associated by reason of common control, common ownership or other common interest; in particular, transactions that occur between firms belonging to the same business group would be considered RPTs. RPTs include sales of goods and services by one party to

the other, granting loans, writing off loans and dues, selling assets and other similar transactions. RPTs can lead to effective asset utilization as well as reduce transactions costs when financial resources as well as technology and business know-how are shared between related parties, particularly in the context of institutional voids (Khanna and Palepu, 2000). While such resource transfers to related entities can hurt minority shareholders if executed at a price significantly below the market price, it can also reduce corporate taxes for the transferring entity.[26] In other words, there are strong motivations for corporations to engage in RPTs. There are good reasons to believe that the foreign firms in our sample can engage in such RPTs at lower net cost than domestic companies, group-affiliated or stand-alone. We provide two such reasons.

First, foreign firms, whether defined by Prowess as group firms or not, are all affiliates of multinational firms that have close ties to their foreign counterparts. For example, the Bata family is a majority shareholder in Bata India Ltd. Another such firm, DISA India, according to its website, is "a leading Equipment Manufacturer in India, offering advanced Foundry & Surface Preparation process technology." It is "the Indian arm of the Denmark based DISA Holding A/s." The Disa Group, according to the same website, is "the leading name in moulding and casting technology."[27] While DISA India belongs to the Disa group, it is not listed in the Prowess database as a group firm, and neither is Bata India; however, it is clear that both of them are likely to have strong motivations to engage in RPTs. These two examples also indicate that our foreign firms tend to have foreign affiliates in the same industry, which would make RPTs much more convenient, on the one hand, and more difficult for regulatory authorities to oversee, on the other. In fact, when we looked at the 113 distinct foreign firms in our sample for the year 2009, 33 of them being group firms and 80 being non-group firms, about half of the group firms had foreign affiliates in the same industry, while 80% of the non-group firms had foreign affiliates in the same industry, broadly defined. Firms in the same industry are likely to engage in operational transactions, such as buying raw materials, selling finished goods, obtaining royalties for intellectual property rights or selling management advice.[28] These goods and services, even raw materials if they are specialized, are likely not to have liquid markets and determining an arm's length prices is likely to be difficult. As a result, using RPTs to transfer resources from one affiliated firm to another is likely to be easier for such firms. Domestic firms, on the other hand, if they are non-group, are unlikely to have close operational relationships with other firms. And even group firms are likely to be in disparate industries given the nature of Indian business groups (Khanna and Palepu, 2000; Gopalan et al. 2014).

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26 Presumably these transfers would be made to related entities that have lower marginal corporate tax rates.

27 Both Bata and Disa are also classified in the Prowess database as non-group firms. While Disa India today is 74% owned by Disa Holdings, a part of the Norican group, seems to have originally been a joint venture between various entities including the government of Karnataka.(http://www.moneycontrol.com/company-facts/disaindia/history/DI22, viewed October 1, 2015). Bata, may also not be classified as a group by Prowess because all its affiliates operate in the same industry. Although Prowess's definition of a group is self-confessedly subjective, the database may well be using a common understanding of group which involves ownership of businesses in disparate industries (see, e.g. Khanna and Palepu, 2000).

28 For example, Kodak India, CLSA India and Ford India all either pay royalties to their parents Kodak USA, Credit Lyonnais Securities Asia and Ford USA or purchase advertising or other services from them.

A second reason why foreign firms are more likely to engage in RPTs has to do with tax savings. Foreign companies in India are taxed at a rate about 10% higher than local companies,[29] which makes it more desirable for them to reduce their reported Indian profits. According to the Indian Ministry of Corporate Affairs,[30] the US, Singapore, the UK, Japan and Germany are the source countries for the largest number of foreign companies operating in India. In terms of comparable statutory tax rates, the corporate tax rate for India in 2013 was 43.26% for large foreign companies operating in India (Ernst and Young, 2013), which is larger than the 35% rate domestic corporate tax rate in the US, 17% in Singapore, 25.5% in Japan and 15% in Germany.[31] For parents of these India-listed foreign companies requiring funds, it is certainly better to obtain the funds through internal transfers without having to pay high corporate income taxes and dividend taxes in India. These are all strong a priori reasons to expect foreign firms in India to actively use internal money transfers. Empirically, too, we have evidence that OECD multinationals, for one, tend to use transfer pricing as a strategy to reduce taxes – underpricing sales to subsidiaries in low tax countries and vice-versa (Bartelsman and Beetsma, 2003).

There is also indirect evidence that foreign firms may be using aggressive transfer pricing practices to move income from their Indian affiliates abroad. This is suggested by a recent article in an Indian business daily, The Hindu Business Online,[32] which reports that "Dividends declared by a foreign company outside India on shares that derived substantial value from assets in India" are not taxable in India according to the Central Board of Direct Taxes (CBDT, the Indian equivalent of the Internal Revenue Service). That article also reports a corporate tax lawyer as saying that this "clears the air on taxability (under indirect transfer) of dividends declared by foreign companies outside India." This ruling seems to have been intended to assuage the sentiments behind the drop in investment following the controversial retrospective amendment to the Income Tax Act by the Finance Act of 2012.[33] The history behind the government notification goes back to the economic liberalization of the early 1990s. Following the increased FDI and the increase in international trade, the number and size of transactions between companies belong to the same foreign group also increased, leading to the use of transfer pricing activities that affected Indian corporate tax revenues negatively. It was to counter this that the Indian government introduced new Transfer Pricing Regulations through the Finance Act, 2001.[34] In spite of the new regulations, the Indian government seems to have felt that corporations were continuing to avoid taxes through the use of creative

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[29] Doing Business in India, Ernst and Young, November 2013, (https:www.ey.com%2FPublication%2FvwLUAssets%2FIndia_-_Doing_Business%2F%24FILE%2FDoing%2520Business%2520in%2520India.pdf, viewed October 1, 2015.)

[30] http://www.mca.gov.in/DataPortal/Ministry/DataPortal/ForeignCompanies_Source_Countrywise_1.xls

[31] Deloitte and Touche, Corporate Tax Rates, 2015. Of course, effective tax rates are likely to be quite different, given the loopholes in tax codes.

[32] The Hindu Business Online, March 27, 2015.

[33] This amendment sought to retroactively tax the 2007 Vodafone acquisition of Hutchinson Essar Telecom. Even though the transaction took place in the Cayman Islands, the Indian tax authorities alleged that, since the transaction involved purchase of the assets of an Indian company, it was liable to Indian taxation.

[34] http://www.india-briefing.com/news/transfer-pricing-law-india-7815.html/

transfer pricing. This led to "a steep expansion of Transfer Pricing Officers (TPOs), a coordinated all-India transfer pricing approach, and coordination between customs and transfer pricing authorities, resulting in significant adjustments being made to companies in IT, pharmaceuticals, financial services, automobiles, chemicals and related sectors." [35] The behavior of the Indian Government from the 1990s to the present day does seem to suggest a concern with the potential of transfer pricing practices to affect corporate taxes. Furthermore, the Indian tax authorities have been successfully basing their challenges of multinational transfer pricing practices by comparing them to pricing in purely domestic companies (Ernst and Young, 2013). Hence it would seem that there are grounds to believe the existence of aggressive transfer pricing practices in foreign companies for the years in our sample. In summary, there are both a priori and empirical reasons to expect foreign firms to have lower propensities to make dividend payouts than Indian firms.

As far as our finding that foreign group firms have a higher propensity to pay dividends than foreign non-group firms, this may be purely an artifact of how CMIE, the creators of the Prowess database, defines a group. The identity of Indian groups is fairly well known, since they are widely recognized as being groups and usually are not of recent provenance. However, foreign firms may have been classified as group firms or non-group firms based on unknown criteria that may make group firms different from non-group firms in unknown ways. In fact, as mentioned above, non-group foreign firms seemed to have a parent or a major shareholder abroad in the same industry in about 80% of the firms in our sample, in contrast to a much lower percentage for foreign group firms. If our conjecture that having affiliates in the same industry facilitates internal resource transfers, this could very well account for the lower propensity of non-group foreign firms to pay dividends. Furthermore, according to its own disclosure, "CMIE uses the available data, its intelligence and judgement in associating a company to a business group or any ownership heading in the ownership structure. The classification is thus sometimes tentative." More research is required on the characteristics of foreign group firms.

While the dividend evidence above provided strong evidence in favor of the ICM hypothesis, we now suggest an additional test of this hypothesis, based on our argument that India-listed affiliates of foreign firms would find it optimal to expatriate funds through operational transactions to their foreign affiliate. If this is true, foreign firms engaging in transfer pricing activities to benefit their foreign affiliates should have lower profitability relative to Indian-group firms. In fact, keiretsu firms in Japan have been shown to have lower profitability compared to non-keiretsu firms (Lincoln et al. 1996). Unfortunately, we are not able to show that foreign group firms have significantly lower profitability. Similarly, to the extent that Indian group firms use transfer pricing activities, their reported profits should also be smaller than comparable Indian non-group firms. Once again, we cannot demonstrate that there is a statistically significant difference. Of course, for Indian group firms, it may not make sense to make resource transfers to affiliated

[35] KPMG (2013). The Vodafone case, thus, was only one transaction that stood out because of its size and because it went all the way to the Supreme Court and caused an explicit Government reaction.

firms using transfer pricing mechanisms. To the extent that resource transfers are done in the form of loans or other activities that are not related to operations, profits may indeed not be affected.[36] We do, however, provide suggestive evidence that the dividend policy of foreign firms listed in India is very likely affected by internal funds transfers accomplished through the mechanism of aggressive and strategic transfer pricing practices with the goal of reducing taxes paid on Indian profits.

VI. Conclusion

In this paper, we investigate the Internal Capital Markets hypothesis. The essence of the ICM theory is that the cost to firms of internal financing is lower compared to that of external financing. As a result, firms with larger sources of internal financing (internal capital markets, ICM) are able to match more of their investment needs internally; consequently they pay lower dividends. We test this hypothesis by looking at the dividend policies of listed Indian corporates: firms affiliated with business groups, according to the ICM hypothesis, would pay lower dividends. While previous papers have found that group-affiliated firms actually pay higher dividends, we find that there is no difference between group-affiliated and unaffiliated firms, once we control for industry affiliation and other firm-specific variables. However, consistent with the ICM, we find that group-affiliated firms have a lower propensity to pay dividends. We also look at the behavior of foreign firms, which are actually India-listed firms where foreign promoters have significant control. We find that foreign group-affiliated firms are less likely to pay dividends than Indian group-affiliated firms. We suggest that this may be due to related-party transactions (RPTs) such as transfer pricing arrangements between the foreign firms and their affiliates abroad. As part of our analysis, we raise important questions as to what constitutes a group firm. Our paper thus makes contributions in two different areas: one, the internal capital markets hypothesis, and two, differences between financial policies of foreign firms and domestic firms in developing countries.

36 Bertrand, Mehta and Mullainathan (2002) find no evidence of tunneling in operating profits.

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Table 1: Description of key variables and their expected signs in Payout-Ratio Regressions

Variable	Definition	Expected sign	Dominant Theory
Payout variables			
Dividend-to-earnings ratio (DIV/E)	Cash dividends / earnings		
Dividend-to-sales ratio (DIV/S)	Cash dividends / sales		
Key explanatory variables			
Group_all	Dummy variable for Indian and Foreign Group Firms	-	Internal Capital Markets
Indian	Dummy variable for Indian Group and Non-Group Firms		Internal Capital Markets
Foreign	Dummy variable for Foreign Group and Non-Group Firms		Internal Capital Markets
Indian_group	Dummy variable for Indian Group Firms		Internal Capital Markets
Foreign_group	Dummy variable for Foreign Group Firms		Internal Capital Markets
Indian_nongroup	Dummy variable for Indian Non-Group Firms		Internal Capital Markets
Foreign_nongroup	Dummy variable for Foreign Non-Group Firms		Internal Capital Markets
Firm Assets (log(TA))	Log(Total Assets) for each firm	+	Cashflow Uncertainty
Group Size (Group_N)	Number of firms in the ownership group	+	Internal Capital Markets
Group Assets (Group_log(TA))	Log of the Sum of Total Assets in the ownership group	+/-	Internal Capital Markets/ Cashflow Uncertainty
Capital Intensity (CapInt)	Fixed Assets/Total Assets	+/-	Investment Opportunities
R&D	Capital Account/Sales	-	Investment Opportunities
Intangibles-to-Assets (Intangibles)	Ratio of Intangibles to Total Assets	-	Investment Opportunities
Market-to-Book (MBR)	Market value of equity / book value of equity	-	Investment Opportunities
Cashflow-to-Assets (CFA)	Ratio of Cashflow to Assets	+	Access to Funds
Age	Age of the firm	+	Cashflow Uncertainty
Long term debt (Ltdebt)	Ratio of Long term debt to Market Value of Assets	+/-	Access to Funds
Cash Holdings (CASH)	Ratio of cash and bank balance to total assets	+	Access to Funds
Volatility of cash flows (VOLCF)	Volatility of the ratio of Operating cashflows to Total Assets	-	Cashflow Uncertainty
Borrowing in foreign currency (FOREX)	Ratio of unsecured foreign currency borrowings to total borrowings	+/-	Access to Funds
Export Intensity (Exp)	Exports/Sales	-	Investment Opportunities

Table 2: Firm distributions by year, ownership and industry affiliation

The table presents in panel A number of observations for each year in the sample 2000-2009 with total 15574 observations after the data was winsorized. Panel B provides percentage of observations in each type of ownership group; panel C provides percentage of observations in each industry and NIC numbers that were used to determine the industry type. All the data were obtained from Prowess database.

A. Number of firms in sample, by year

Year	Number of firms
2000	1527
2001	1516
2002	1564
2003	1553
2004	1542
2005	1539
2006	1591
2007	1603
2008	1609
2009	1530
Total	15574

B. Distribution of observations by ownership category

Group	Description	Proportion in sample
Indian_group	Indian group companies	36.03%
Foreign_group	Foreign group companies	2.23%
Indian_nongroup	Indian non-group companies	56.73%
Foreign_nongroup	Foreign non-group companies	5.01%

C. Distribution of observations across industries

Industry indicator	Industry	NIC numbers	% Observations
Industry_agric	Agriculture and Mining	10000-14999	2.51%
Industry_manuf	Manufacturing	15000-36999	56.95%
Industry_electr	Electricity	40000-44999	0.69%
Industry_constr	Construction	45000-45301	3.94%
Industry_trade	Trade and Hotel	50000-55000	6.59%
Industry_transport	Transport and Telecom	60000-64202	2.25%
Industry_busserv	Business Services	65000-75000	12.60%
Industry_comserv	Community Services	80000-92200	2.33%
	Miscellaneous	93000-97000	12.13%

Table 3: Payout Ratios by Ownership Category Status

The table presents the means, standard deviations and number of observations in each ownership category for the payout ratios. The results for the dividend to earnings ratio (DIV/E) are in columns 2-4; the results for the dividend to sales ratio (DIV/S) are in columns 5-7. N is number of observations of the payout ratio in each ownership category. T-test for equality of means between all group and non-group firms as well as the Lawley-Hotelling trace test of equality means of four groups (Indian group, Foreign group, Indian non-group, Foreign non-group) are given in the last rows columns 2-3 for DIV/E and columns 5-6 for DIV/S respectively. The *** indicates the significance of the test at the 1% level.

	DIV/E			DIV/S		
Ownership Category	mean	(St. Dev.)	N	mean	(St. Dev.)	N
Indian group firms (1)	0.181	0.220	5,459	0.021	0.062	5,612
Foreign group firms (2)	0.341	0.260	329	0.046	0.070	347
Indian non-group firms (3)	0.089	0.180	8,739	0.011	0.045	8,835
Foreign non-group firms (4)	0.226	0.264	764	0.027	0.043	780
Indian and Foreign group firms (1+2)	0.190	0.226	5,788	0.022	0.063	5,959
Indian and Foreign non-group firms (3+4)	0.100	0.191	9,503	0.012	0.045	9,615

	Statistics	(p-value)	Statistics	(p-value)
Test of equality of group (1+2) versus non-group (3+4) means:				
t-statistics	25.471***	(0.000)	11.041***	(0.000)
Joint test for equality of (1),(2),(3),(4) group means:				
Lawley-Hotelling trace statistics	0.082***	(0.000)	0.018***	(0.000)

Table 4: Payout Ratios by Industry

The table presents the means, standard deviations and number of observations in each industry for the payout ratios. The results for the dividend to earnings ratio (DIV/E) are in columns 2-4; the results for the dividend to sales ratio (DIV/S) are in columns 5-7. N is number of observations of the payout ratio in each ownership category. The Lawley-Hotelling trace test of equality means of four groups are given in the last row columns 2-3 for DIV/E and columns 5-6 for DIV/S respectively. The *** indicates the significance of the test at the 1% level.

	DIV/E			DIV/S		
Industry	mean	(St. Dev.)	N	mean	(St. Dev.)	N
Agriculture and Mining	0.101	0.178	386	0.012	0.027	391
Manufacturing	0.158	0.220	8,674	0.013	0.033	8,869
Electricity	0.196	0.203	106	0.050	0.112	108
Construction	0.115	0.170	610	0.012	0.032	614
Trade and Hotel	0.129	0.224	1,011	0.020	0.078	1,026
Transport and Telecom	0.139	0.214	346	0.025	0.062	351
Business Services	0.097	0.184	1,939	0.033	0.098	1,963
Community Services	0.113	0.209	358	0.018	0.051	363
Miscellaneous	0.074	0.173	1,861	0.008	0.038	1,889

Test for equality of 9 group means	Statistics	(p-value)	Statistics	(p-value)
Lawley-Hotelling trace statistics	0.024***	(0.000)	0.023***	(0.000)

Table 5: Summary Statistics for Selected Firm Specific Variables

The table presents summary statistics (mean, standard deviation, median and number of observations N) of key variables. Payout Ratio DIV/E is dividends paid/profit after taxes; DIV/S is dividends paid/sales. Firm size is the natural logarithm of Total Assets (Log(TA)); Goup_N is number of firms in the ownership group; Group_log(TA) is the log of the sum of Total Assets in the ownership group; CapInt is the ratio of Net Fixed Assets to Total Assets. Intangibles is the ratio of Net Intangible Assets to Total Assets; MarketCap is defined as the market price of the stock at the end of March (which is the end of the financial year for most firms in India) times the number of shares outstanding; BookValue is defined as Assets minus Total Borrowings ; MBR is the ratio of MarketCap to BookValue; CFA is Operating Cashflow before Working Capital Changes as a ratio of Total Assets; R&D is the ratio of R&D expenses on Capital Account to Sales; Age is current year minus the year of incorporation; Ltdebt is (Total Borrowings - Short-term Borrowings)/(MktValAssets); CASH is the ratio of cash and bank balance to Total Assets; VOLCF is the volatility of Operating CashFlow/Total Assets, computed using observations for the most recent four years; FOREX is the ratio of unsecured foreign currency borrowings to total borrowings; Exp is the ratio of exports to sales.

	Mean	Median	St.Dev	N
DIV/E	0.134	0.000	0.210	15,291
DIV/S	0.016	0.000	0.053	15,574
Log(TA)	4.416	4.298	1.925	15,512
Group_N	1.765	1.000	2.355	15,574
Group_log(TA)	4.852	4.588	2.317	15,527
CapInt	0.359	0.345	0.224	15,485
R&D	0.0003	0.000	0.0016	15,405
Intangibles	0.010	0.000	0.036	15,398
MBR	1.073	0.447	2.746	13,860
CFA	0.088	0.084	0.092	15,315
Age	24.15	18.00	19.55	15,554
Ltdebt	0.190	0.133	0.189	13,812
CASH	0.054	0.023	0.087	15,350
VOLCF	0.058	0.029	0.395	9,662
FOREX	0.012	0.000	0.064	14,005
Exp	0.156	0.012	0.266	15,494

Table 6: Correlations between dividend payout and key variables

The table reports the correlations between dividend payout and key variables over the period 2000-2009. The second column reports the correlations of DV/E, the dividend-to-earnings ratio, with key variables. The third column reports the correlations of DV/S, the dividend-to-sales ratio, with key variables. The star indicated the correlation coefficient is statistically significant at the 5% level.

	DIV/E	DIV/S
Log(TA)	0.3315*	0.1348*
Group_N	0.1899*	0.0804*
Group_log(TA)	0.3271*	0.1457*
CapInt	-0.0202*	-0.0995*
R&D	0.1305*	0.0306*
Intangibles	0.0231*	0.0204*
MBR	0.0839*	0.0986*
CFA	0.3382*	0.1541*
Age	0.2331*	0.0691*
Ltdebt	-0.1348*	-0.1182*
CASH	0.1075*	0.1309*
VOLCF	-0.0380*	-0.0129
FOREX	0.0655*	0.0359*
Exp	0.0789*	0.0655*

Table 7: Summary Statistics by group categories

The table presents summary statistics for the key variables for subsamples: group versus non-group firms in panel A and indian versus foreign firms in panel B . The last column reports the t-statistics of the difference in mean between group and non-group firms for panel A and the difference in mean beween foreign and indian firms in panel B. Positive value of t-statistics indicates higher mean for group firms in panel A and for foreign firms in panel B. The *** indicates the significance of the t-test at the 1% level.

A. Summary Statistics – group vs non-group firms

Variable	Group			Non-group			
	Mean	St. Dev.	N	Mean	St. Dev.	N	t-stat
DIV/E	0.190	0.226	5,788	0.100	0.191	9,503	25.47***
DIV/S	0.022	0.063	5,959	0.012	0.045	9,615	11.04***
Log(TA)	5.657	1.760	5,941	3.645	1.591	9,571	71.76***
Group_N	2.999	3.467	5,959	1.000	0.000	9,615	44.51***
Group_log(TA)	6.791	1.956	5,956	3.645	1.591	9,571	100.00***
CapInt	0.383	0.218	5,930	0.345	0.227	9,555	10.57***
R&D	0.0005	0.0020	5,876	0.0002	0.0013	9,529	11.58***
Intangibles	0.010	0.032	5,923	0.010	0.038	9,475	-0.52
MBR	1.189	2.594	5,452	0.998	2.837	8,408	4.08***
CFA	0.100	0.091	5,881	0.081	0.092	9,434	12.43***
Age	31.855	23.266	5,954	19.379	14.960	9,600	36.91***
Ltdebt	0.216	0.191	5,438	0.173	0.186	8,374	13.03***
CASH	0.050	0.079	5,943	0.056	0.091	9,407	-4.26***
VOLCF	0.060	0.582	3,819	0.057	0.192	5,843	0.28
FOREX	0.021	0.083	5,540	0.006	0.047	8,465	12.31***
Exp	0.159	0.246	5,928	0.154	0.278	9,566	1.12

B. Summary Statistics – foreign vs Indian firms

The table presents summary statistics for the key variables for two subsamples: foreign and Indian firms. The last column reports the t-statistics of the difference in mean between group and non-group firms. Positive value of t-statistics indicates higher mean for group firms. The *** indicates the significance of the t-test at the 1% level.

Variable	Foreign			Indian			
	Mean	St. Dev.	N	Mean	St. Dev.	N	t-stat
DIV/E	0.260	0.268	1,093	0.124	0.201	14,198	16.45***
DIV/S	0.033	0.054	1,127	0.015	0.052	14,447	10.83***
Log(TA)	5.690	1.671	1,127	4.316	1.908	14,385	26.29***
Group_N	1.186	0.429	1,127	1.810	2.436	14,447	-26.04***
Group_log(TA)	5.907	1.803	1,127	4.769	2.332	14,400	19.91***
CapInt	0.322	0.215	1,124	0.362	0.225	14,361	-6.02***
R&D	0.001	0.002	1,119	0.000	0.002	14,286	4.24***
Intangibles	0.017	0.039	1,120	0.010	0.036	14,278	5.90***
MBR	1.886	1.900	1,039	1.007	2.793	12,821	13.75***
CFA	0.140	0.103	1,101	0.084	0.090	14,214	17.69***
Age	32.989	22.136	1,127	23.464	19.161	14,427	14.04***
Ltdebt	0.101	0.161	1,028	0.197	0.189	12,784	-18.01***
CASH	0.101	0.120	1,127	0.050	0.083	14,223	14.03***
VOLCF	0.047	0.057	736	0.059	0.411	8,926	-2.55***
FOREX	0.021	0.088	911	0.011	0.062	13,094	3.20***
Exp	0.207	0.287	1,118	0.152	0.264	14,376	6.27***

Table 8 : TOBIT for DIV/E and DIV/S

The table presents Tobit regression results for the dividend to earnings ratio DIV/E and dividend to sales ratio DIV/S over the period 2003-2009 for the whole sample. Columns 2 and 4 give results for group versus non-group firms while columns 3 and 5 show results for foreign versus domestic Indian firms. The numbers in parentheses are t-statistics. We follow Petersen (2009) and report t-statistics for the pooled results using standard errors corrected for clustering at the firm level. LK is the log likelihood ratio. N*T is the total number of observations. Year dummy variables are used in the regression but the results are omitted to save space. The *, ** and *** indicate significance at 10%, 5% and 1% levels respectively. Variables that are statistically significant are in bold.

	DIV/E		**DIV/S**	
	Group/Non-Group	**Foreign/Indian**	**Group/Non-Group**	**Foreign/Indian**
	coeff	coeff	coeff	coeff
	(t-stat)	(t-stat)	(t-stat)	(t-stat)
Group_all (-)	-0.004		0.001	
	(-0.23)		(0.2)	
Foreign (-)		0.00005		-0.007
		(0.00)		(-1.11)
Log(TA) (+)	0.048***	0.048***	0.007***	0.007***
	(5.14)	(5.26)	(2.95)	(3.10)
Group_N (+)	0.001	0.001	-0.002**	-0.002**
	(0.15)	(0.18)	(-2.22)	(-2.42)
Group_log(TA) (+)	0.017*	0.016*	0.007**	0.007***
	(1.71)	(1.76)	(2.34)	(2.92)
CapInt (+)	0.005	0.005	-0.033***	-0.033***
	(0.13)	(0.12)	(-2.78)	(-2.84)
R&D (-)	6.023**	5.982**	1.049**	1.026**
	(2.37)	(2.36)	(2.56)	(2.46)
Intangibles (-)	-0.317	-0.316	-0.181***	-0.178***
	(-1.63)	(-1.62)	(-3.89)	(-3.83)
MBR (-)	0.001	0.001	0.001	0.001
	(0.36)	(0.37)	(1.26)	(1.29)
CFA (+)	1.470***	1.471***	0.336***	0.338***
	(17.54)	(17.46)	(10.84)	(10.95)
Age (+)	0.002***	0.002***	0.0004***	0.0004***
	(4.97)	(4.93)	(4.02)	(3.97)
Ltdebt (-)	-0.358***	-0.358***	-0.052***	(-0.054***
	(-7.39)	(-7.32)	(-3.66)	(-3.73)
CASH (+)	0.236***	0.238***	0.061***	0.064***
	(3.19)	(3.16)	(3.2)	(3.26)
VOLCF (-)	-0.896***	-0.896***	-0.153***	-0.154***
	(-2.80)	(-2.80)	(-2.94)	(-2.95)
Industry_manuf	0.106***	0.106***	0.017***	0.017***
	(4.41)	(4.39)	(2.82)	(2.84)
Industry_electr	0.075*	0.076*	0.051***	0.052***
	(1.66)	(1.64)	(2.8)	(2.86)

Industry_constr	0.077**	0.078**	0.017*	0.017*
	(2.04)	(2.04)	(1.93)	(1.86)
Industry_trade	0.154***	0.154***	0.045***	0.045***
	(3.89)	(3.89)	(3.05)	(3.06)
Industry_transport	0.005	0.005	0.026*	0.026*
	(0.08)	(0.08)	(1.67)	(1.69)
Industry_busserv	0.056*	0.055*	0.051***	0.051***
	(1.73)	(1.73)	(4.43)	(4.41)
Industry_comserv	0.131***	0.130***	0.028***	0.028***
	(2.33)	(2.33)	(2.68)	(2.67)
Intercept	-0.530***	-0.529***	-0.150***	-0.150***
	(-13.83)	(-13.86)	(-11.72)	(-11.48)
N*T	8,319	8,319	8,455	8,455
LK	-2895.87	-2895.95	2753.79	2755.27

Table 9: PROBIT for dividend payment

The table presents Probit regression results for the dividend payout over the period 2003-2009. The dependent variable is a dummy variable for which dividend-payers take 1 and non-dividend-payers take 0. Columns 2 and 3 give results for group versus non-group firms while columns 4 and 5 show results for foreign versus Indian firms. Columns 6 and 7 give results for Foreign Group versus Foreign Non-Group firms with only foreign firms used in the sample, while columns 8 and 9 give results for the Indian Group versus Indian Non-Group firms with only Indian firms in the sample. Finally columns 10 and 11 show results for all group categories with Indian nongroup used as a reference group for the whole sample. The numbers in parentheses are t-statistics. We follow Petersen (2009) and report t-statistics for the pooled results using standard errors corrected for clustering at the firm level. LK is the log likelihood ratio. N*T is the total number of observations. Year dummy variables are used in the regression but the results are omitted to save space. Marginal effects of group dummy variables with t-statistics in parentheses are reported in the lower part of the Table. The *, ** and *** indicate significance at 10%, 5% and 1% levels respectively. Variables that are statistically significant are in bold.

	Group/Non-Group		**Foreign/Indian**		**Foreign Group/Non-Group**		**Indian Group/Non-Group**		**All groups**	
	coeff		coeff		coeff		coeff		coeff	
	(t-stat)		(t-stat)		(t-stat)		(t-stat)		(t-stat)	
Group_all (-)	-0.137	-0.193**								
	(-1.46)	(-2.06)								
Foreign			-0.493***	-0.405**						
			(-3.11)	(-2.51)						
Indian_group							-0.254**	-0.273***	-0.233**	-0.253***
							(-2.52)	(-2.74)	(-2.39)	(-2.60)
Foreign_group					0.630**	0.595*			-0.315	-0.426
					(2.24)	(1.93)			(-1.00)	(-1.29)
Foreign_nongroup									-0.720***	-0.581***
									(-3.77)	(-3.12)
Log(TA) (+)	0.391***	0.382***	0.419***	0.408***	0.072	0.032	0.424***	0.404***	0.404***	0.390***
	(8.58)	(7.55)	(8.97)	(7.96)	(0.43)	(0.20)	(8.84)	(7.62)	(8.72)	(7.58)
Group_N (+)	0.020	0.019	0.013	0.016	-0.443	-0.637	0.014	0.016	0.012	0.013
	(0.91)	(0.81)	(0.61)	(0.68)	(-0.95)	(-1.47)	(0.63)	(0.65)	(0.53)	(0.54)
Group_log(TA) (+)	0.022	0.035	-0.006	-0.006	0.279	0.344**	0.031	0.040	0.037	0.046
	(0.48)	(0.71)	(-0.13)	(-0.13)	(1.55)	(2.13)	(0.63)	(0.76)	(0.78)	(0.91)
CapInt (+)	-0.168	-0.021	-0.181	-0.031	-0.344	-0.124	-0.232	-0.069	-0.184	-0.029
	(-1.00)	(-0.12)	(-1.07)	(-0.18)	(-0.46)	(-0.16)	(-1.34)	(-0.39)	(-1.09)	(-0.17)
R&D (-)	69.392***	65.457***	67.740***	63.524***	17.095	5.476	76.263***	74.598***	68.632***	65.074***
	(3.54)	(3.08)	(3.51)	(3.03)	(0.31)	(0.14)	(3.60)	(3.31)	(3.45)	(3.05)
Intangibles (-)	-2.523***	-2.419**	-2.279**	-2.241**	-1.920	-5.030	-2.350**	-2.083*	-2.251**	-2.212**
	(-2.60)	(-2.17)	(-2.41)	(-2.05)	(-0.70)	(-1.62)	(-2.33)	(-1.79)	(-2.39)	(-2.02)
MBR (-)	0.011	0.003	0.014	0.006	-0.126	-0.195*	0.020*	0.014	0.013	0.006
	(1.15)	(0.27)	(1.47)	(0.58)	(-1.58)	(-1.95)	(1.95)	(1.39)	(1.40)	(0.57)
CFA (+)	8.381***	8.889***	8.549***	8.962***	7.014***	8.109***	8.916***	9.199***	8.613***	9.002***
	(19.01)	(18.94)	(19.87)	(19.22)	(4.90)	(4.94)	(19.70)	(18.62)	(19.96)	(19.28)
Age (+)	0.011***	0.011***	0.011***	0.011***	0.014*	0.014*	0.012***	0.012***	0.011***	0.012***
	(5.60)	(5.72)	(5.71)	(5.70)	(1.79)	(1.72)	(5.68)	(5.70)	(5.92)	(5.89)
Ltdebt (-)	-1.763***	-1.808***	-1.866***	-1.868***	-3.222***	-3.342***	-1.823***	-1.785***	-1.893***	-1.882***
	(-8.73)	(-8.51)	(-9.03)	(-8.63)	(-3.48)	(-3.42)	(-8.55)	(-8.10)	(-9.16)	(-8.69)
CASH (+)	1.152***	1.542***	1.357***	1.677***	0.640	0.920	1.547***	1.759***	1.349***	1.649***
	(3.23)	(3.71)	(3.87)	(3.96)	(0.78)	(1.02)	(4.03)	(3.85)	(3.91)	(4.00)
VOLCF (-)	-3.643***	-4.169***	-3.640***	-4.107***	-3.912	-3.907	-3.725***	-4.238***	-3.682***	-4.142***
	(-3.03)	(-2.65)	(-2.99)	(-2.61)	(-1.56)	(-1.56)	(-2.85)	(-2.47)	(-3.03)	(-2.65)

FOREX (+)		1.037**		1.055**		1.562		1.317***		1.020**
		(2.18)		(2.29)		(0.93)		(3.09)		(2.21)
Exp (-)		0.411***		0.445***		-0.495		0.433***		0.423***
		(3.40)		(3.65)		(-0.79)		(3.42)		(3.46)
Industry_manuf	0.376***	0.368***	0.391***	0.377***	-0.476	-0.506	0.415***	0.409***	0.387***	0.374***
	(3.96)	(3.71)	(4.00)	(3.73)	(-0.80)	(-0.83)	(4.20)	(4.00)	(3.96)	(3.69)
Industry_electr	0.510	0.501	0.567	0.573			0.383	0.336	0.594	0.574
	(1.31)	(1.35)	(1.45)	(1.49)			(0.87)	(0.83)	(1.52)	(1.47)
Industry_constr	0.490**	0.583***	0.483**	0.595***			0.445**	0.561***	0.443**	0.553***
	(2.61)	(2.85)	(2.54)	(2.88)			(2.29)	(2.67)	(2.33)	(2.67)
Industry_trade	0.527***	0.549***	0.544***	0.554***	-1.261	-0.609	0.656***	0.605***	0.547***	0.552***
	(3.10)	(3.52)	(3.28)	(3.56)	(-1.45)	(-0.70)	(4.08)	(3.82)	(3.29)	(3.52)
Industry_transport	-0.334	-0.280	-0.317	-0.268	-1.035	-0.520	-0.274	-0.273	-0.304	-0.270
	(-1.11)	(-0.89)	(-1.06)	(-0.85)	(-1.00)	(-0.56)	(-0.85)	(-0.80)	(-1.01)	(-0.85)
Industry_busserv	0.337**	0.288**	0.345**	0.295**	-0.168	0.696	0.321**	0.248	0.342**	0.297**
	(2.53)	(1.96)	(2.53)	(1.98)	(-0.27)	(0.95)	(2.25)	(1.59)	(2.51)	(1.97)
Industry_comserv	0.333*	0.302	0.323*	0.305	-0.446	-0.257	0.358*	0.327*	0.335*	0.310*
	(1.86)	(1.59)	(1.84)	(1.61)	(-0.76)	(-0.43)	(1.91)	(1.64)	(1.88)	(1.65)
Intercept	-3.014***	-3.207***	-3.022***	-3.179***	-1.320*	-1.402*	-3.198***	-3.340***	-3.066***	-3.238***
	(-19.01)	(-18.54)	(-19.28)	(-18.31)	(-1.74)	(-1.91)	(-19.11)	(-18.23)	(-19.22)	(-18.60)
N*T	8,455	7,528	8,455	7,528	641	478	7,795	7,034	8,455	7,528
LK	-3256.37	-2877.78	-3239.31	-2873.23	-214.32	-152.92	-2964.00	-2669.39	-3224.7098	-2861.8429
Pseudo R2	0.44	0.45	0.45	0.45	0.44	0.48	0.45	0.45	0.45	0.45
Marginal effect at median										
Group_all		-0.08**								
		(-2.07)								
Foreign				-0.15***						
				(-2.68)						
Indian_group								-0.11***		-0.10***
								(-2.76)		(-2.61)
Foreign_group						0.12*				-0.16
						(1.73)				(-1.36)
Foreign_nongroup										-0.22***
										(-3.41)

Table 10 : Year by year PROBIT regressions

The table presents Probit regression results for the dividend payout over the period 2003-2009.Columns 2 and 3 give results for group versus non-group firms while columns 4 and 5 show results for foreign versus Indian firms. Industry dummy variables are used in the regression but the results are omitted to save space. Each reported coefficient is the average of the seven regression coefficients over the seven-year sample period. The numbers in parentheses are t-statistics for the average regression coefficient. The t-statistics are calculated following the Fama-MacBeth approach from the time series of fitted Probit coefficients. '# expected sign' denotes the number of times the regression coefficient takes the expected sign as noted in Table 1. '#sig' denotes the number of times the regression coefficient is statistically significant (two-tailed significance at the 10% level) with the predicted sign. LK is the average log likelihood ratio. N is the average annual number of observations. Variables that are statistically significant for at least 3 years out of total T=7 years are in bold.

	Group/Non-Group		**Foreign/Indian**	
	coeff (t-stat)	# expected sign [# sign at 10%]	coeff (t-stat)	# expected sign [# sign at 10%]
Group_all (-)	-0.195	6		
	(-3.26)	[3]		
Foreign (-)			-0.443	7
			(-11.75)	[4]
Log(TA) (+)	0.394	7	0.421	7
	(16.16)	[7]	(17.15)	[7]
Group_N (+)	0.021	5	0.016	5
	(2.04)	[0]	(1.74)	[0]
Group_TA (+)	0.037	4	-0.005	4
	(1.43)	[1]	(-0.19)	[0]
CapInt (+)	-0.031	4	-0.042	4
	(-0.34)	[0]	(-0.51)	[0]
R&D (-)	85.207	0	82.803	0
	(3.86)	[4]	(3.74)	[4]
Intangibles (-)	-2.311	6	-2.124	7
	(-4.67)	[3]	(-4.65)	[1]
MBR (-)	-0.022	3	-0.003	3
	(-1.04)	[0]	(-0.25)	[0]
CFA (+)	9.424	7	9.467	7
	(12.45)	[7]	(12.56)	[7]
Age (+)	0.012	7	0.011	7
	(12.62)	[7]	(13.84)	[7]
Ltdebt (-)	-2.014	7	-2.059	7
	(-9.94)	[7]	(-9.99)	[7]
CASH (+)	1.784	7	1.934	7
	(5.49)	[5]	(5.71)	[5]
VOLCF (-)	-4.740	7	-4.649	7
	(-5.64)	[5]	(-5.51)	[5]
FOREX (+)	1.687	7	1.649	6
	(3.15)	[3]	(3.07)	[3]
Exp (-)	0.404	0	0.439	0
	(6.53)	[4]	(6.32)	[5]

Industry_manuf	0.374		0.383	
	(6.68)	[6]	(6.60)	[6]
Industry_electr	0.071		0.161	
	(0.32)	[2]	(0.79)	[2]
Industry_constr	0.595		0.606	
	(10.95)	[5]	(9.89)	[5]
Industry_trade	0.582		0.585	
	(6.87)	[6]	(6.93)	[6]
Industry_transport	-0.237		-0.225	
	(-1.80)	[1]	(-1.71)	[1]
Industry_busserv	0.249		0.248	
	(2.68)	[2]	(2.63)	[2]
Industry_comserv	0.325		0.315	
	(2.21)	[3]	(2.09)	[3]
Intercept	-3.187		-3.160	
	(-25.56)	[7]	(-27.09)	[7]
N	1072.86		1072.86	
LK	-400.02		-399.61	
Pseudo R2	0.46		0.46	

Figure 1: Average payout ratios DIV/E and DIV/S for group and non-group firms over time.